

REMARKS

The application included claims 1-13 and 18-25, prior to entering this amendment.

Claims 1-13 and 18-25 were rejected.

Applicant amends claims 1, 3, 6, 8, 9, 13, 18, 19, and 21-23.

Applicant adds new claims 26-29. No new matter is added.

Request for Continued Examination - 35 U.S.C. § 132(b) & 37 CFR § 1.114

Applicant is filing herewith a Request for Continued Examination. Authorization to pay the examination fee is included with this response.

Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claims 6, 24, and 25 under 35 U.S.C. § 112, first paragraph.

The rejection is traversed. Grounds for the traversal of claims 6, 24, and 25 were made in the Response after Final, dated January 20, 2009. In the Advisory Action, the Examiner sustained the rejection of claim 6 but failed to comment on Applicant's arguments provided with respect to claims 24 and 25. Accordingly, Applicant assumes the § 112 rejection of claims 24 and 25 has been withdrawn in view of Applicant's January 20, 2009 arguments.

Whereas the rejection is traversed, Applicant amends claim 6 to expedite prosecution, and without prejudice with regard to pursuing the claims as previously presented or in other forms in a continuation or other application. Amended claim 6 recites, in part, *reducing a gray scale of one or more pixels of the image by reducing a number of bits of gray scale image data from each of the one or more pixels.*

In rejecting claim 6, the Examiner stated that the claim features are not defined by the specification, despite the fact that Applicant specifically identified where such support may be found (e.g. at page 3, lines 7-8, 13-16, and 20-22). To facilitate the Examiner's appreciation for where support of the features may be found, Applicant provides the following table:

<u>Claim 6</u>	<u>Specification</u>	
<i>reducing</i>	reduce	(page 3, line 21)
<i>a gray scale</i>	the scale	(page 3, line 21)
<i>of one or more pixels</i>	of each pixel	(page 3, line 21)
<i>of the image</i>	in the image	(page 3, lines 21-22)
<i>by reducing</i>	reducing	(page 3, line 20)
<i>a number of bits</i>	a plurality of bits	(page 3, line 20-21)

*of gray scale image data
from each of the one or more pixels*

of the scale
of each pixel

(page 3, line 21)
(page 3, line 22)

As illustrated above, each of the claim features finds direct support from the specification, as previously indicated by Applicant. Accordingly, withdrawal of the rejection of claims 6, 24, and 25 is respectfully requested.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1-5 and 22 under 35 U.S.C. § 102(e) over Maurer *et al.* (U.S. Patent 6,650,773).

The rejection is traversed; however, Applicant amends claim 1, 3, and 22 to expedite prosecution, and without prejudice with regard to pursuing the claims as previously presented or in other forms in a continuation or other application. Amended claim 1 recites a method for reducing image noise in a scanned image, comprising:

- decreasing a color level of a color element of a pixel of the scanned image by reducing a number of bits of a full color level of the color element to form a reduced color level image;

- composing a pattern comprising the color element having less color level than the full color level; and

- recombining the full color level of the color element by combining the reduced color level image with the pattern.

In rejecting claim 1, the Examiner asserted that “color is combined of chrominance and luminance by convention. Thus either chrominance or luminance reduce, the color level image must reduce, for example: $C = A + B$, either A or B reduced, C must reduce... (e.g., the reconstructed chrominance channels are interpolated to their original resolution.” See page 2, final paragraph of the Advisory Action. Applicant maintains its position that the resolution described by Maurer is not necessarily related to a color level as recited by claim 1 (see pages 6 to 8 of the January 20, 2009 Response).

Even assuming for arguments sake, that the combination of Maurer’s chrominance and luminance channels are combinable in the manner described by the Examiner, they still fail to disclose the features of amended claim 1.

Maurer defines a YCbCr color space, wherein each of Maurer’s channels correspond to a different color. Each color is processed separately from the other colors (col. 2, lines 31-32). The Examiner acknowledged that two different colors of Maurer need to be combined to create

the color level, and suggested that Maurer discloses the features of claim 1 in “that the color level is combined of chrominance and luminance channel” (page 2, fourth paragraph of the Office Action). Claim 1 is amended to recite *a color level of a color element of a pixel* to further distinguish Maurer. As Maurer’s chrominance channels Cb and Cr are processed separately from the luminance Y channel, they would not be understood to disclose *recombining the full color level of the color element*, as recited by claim 1, since Maurer’s processes associated with Cb, Cr and Y are combined to produce the output image.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 6-13, 18-21, and 23-25 under 35 U.S.C. § 103(a) over Maurer.

The rejection is traversed; however, Applicant amends claims 6, 8, 9, 13, 18, 19, 21 and 23 to expedite prosecution, and without prejudice with regard to pursuing the claims as previously presented or in other forms in a continuation or other application. Amended claim 6 recites a method for reducing noise in an image, comprising:

reducing a gray scale of one or more pixels of the image by reducing a number of bits of gray scale image data from each of the one or more pixels; and
restoring the gray scale of the one or more pixels using a halftone pattern comprising a matrix, wherein a number of rows and a number of columns of the matrix correspond to the number of bits of gray scale image data subtracted from the one or more pixels.

The Examiner alleged that Maurer discloses “the luminance channel has the bit depth may be truncated down about 2 bits... and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel... and since color is combined of chrominance channel and luminance channel. Thus number of bits reduced can set equal to the size of the pattern like 2x2 matrix.” (page 4, first paragraph of the Office Action).

As Applicant previously argued (pages 7-8 of the January 20, 2009 Response) Maurer’s 2x2 matrix of pixels fails to disclose *a matrix, wherein a number of rows and a number of columns of the matrix correspond to the number of bits*, as recited by claim 6. The Examiner’s apparent suggestion that the term “pixels” in Maurer may be replaced by “bits” to read on Applicant’s claim 6 is believed to be without basis, or made possible as a result of impermissible hindsight. Applicant notes that the Examiner refused to comment on the argument presented in

the January 20, 2009 Response at pages 7-8, and so provides by way of copy the previously submitted argument, revised consistent with the currently amended claim 6, in order to elicit the Examiner's response.

The Examiner alleges that Maurer discloses "the luminance channel has the bit depth may be truncated down about 2 bits... and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel... and since color is combined of chrominance channel and luminance channel. Thus number of bits reduced can set equal to the size of the pattern like 2x2 matrix." (page 4, first paragraph).

The Examiner appears to be suggesting that the terms pixels and bits have a one-to-one correspondence. By way of reference, the Examiner's attention is drawn to the Wikipedia entry for "PIXEL," and specifically the sub-heading BITS PER PIXEL in which it states that "The number of distinct colors that can be represented by a pixel depends on the number of bits per pixel (bpp)." Accordingly, the color level of each pixel may be represented by a number of bits. Whereas Maurer describes down-sampling by factor of 2 by replacing a 2x2 matrix of pixels by a single pixel, this does not disclose or otherwise suggest *reducing a gray scale of one or more pixels of the image by reducing a number of bits of gray scale image data from each of the one or more pixels*, as recited by claim 6. Rather, Maurer is merely describing the quite different concept of a reduction in resolution, as previously argued.

Applicant respectfully submits that the Examiner's interpretation further utilizes impermissible hindsight to read the features of Applicant's own specification into that of Maurer.

According to MPEP § 2142,

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention...However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

Applicant respectfully submits that the Examiner has determined to interpret the down-sampled pixel matrix of Maurer as if it corresponded to a number of bits of image data without putting applicant's disclosure aside, as required by MPEP § 2142. Maurer, however, does not refer to a number of bits when describing the down-sampling process 108. One skilled in the art would

appreciate that a reduction of resolution does not necessarily imply any reduction in image level of one or more pixels.

Claims 7-13, 18-21, and 23-25 are believed to be allowable for similar reasons as discussed above with respect to claims 1 and 6, in addition to the further novel features recited therein. Further support for the Applicant's position may be found in the Amendments filed July 29, 2008. Accordingly, withdrawal of the rejection of claims 6-13, 18-21, and 23-25 is respectfully requested.

Any statements made by Examiner that are not addressed by Applicant do not necessarily constitute agreement by the Applicant. In some cases, Applicant may have amended or argued the allowability of independent claims thereby obviating grounds for rejection of the dependent claims.

CONCLUSION

For the foregoing reasons, the Applicant respectfully requests reconsideration and allowance of claims 1-13 and 18-29. The Examiner is encouraged to telephone the undersigned if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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